CLAIMS

What is claimed is:

1. A reflective imaging encoder comprising:
an emitter emitting light,
a diffuse reflective coder reflecting light from the emitter,
an imaging lens forming an inverted imaging of the reflected light from the coder, and
a detector receiving the inverted image from the imaging lens.

2. The reflective imaging encoder of Claim 1 where the coder is a code wheel.

3. The reflective imaging encoder of Claim 1 where the coder is a code strip.

4. The reflective imaging encoder of Claim 1 where the emitter is a light emitting diode.

5. The reflective imaging encoder of Claim 4 where the light emitting diode is an unencapsulated light emitting diode chip.

6. The reflective imaging encoder of Claim 4 where the light emitting diode is encapsulated.

7. The reflective imaging encoder of Claim 4 where the emitter is a packaged light emitting diode.

8. The reflective imaging encoder of Claim 6 where the encapsulation forms an optical axis.

9. The reflective imaging encoder of Claim 8 where the light emitting diode is mounted on the optical axis.

10. The reflective imaging encoder of Claim 8 where the light emitting diode is mounted offset from the optical axis.

11. The reflective imaging encoder of Claim 6 where the light emitting diode includes a reflector cup.

12. The reflective imaging encoder of Claim 11 where the encapsulation forms an optical axis.

13. The reflective imaging encoder of Claim 12 where the light emitting diode is mounted on the optical axis.

14. The reflective imaging encoder of Claim 12 where the light emitting diode is mounted offset from the optical axis.

15. The reflective imaging encoder of Claim 4 where the emitter is a plurality of light emitting diodes.

16. The reflective imaging encoder of Claim 1 where the imaging lens is separate from the detector.

17. The reflective imaging encoder of Claim 1 where the imaging lens is incorporated into the encapsulation of the detector.

18. The reflective imaging encoder of Claim 1 further including an aperture between the coder and the imaging lens.

19. The reflective imaging encoder of Claim 1 further including an aperture between the imaging lens and the detector.

20. The reflective imaging encoder of Claim 1 further including a first aperture between the coder and the imaging lens and a second aperture between the imaging lens and the detector.

21. The reflective imaging encoder of Claim 1 where the emitter and the detector are coplanar.

22. The reflective imaging encoder of Claim 1 where the emitter and the detector are mounted on a common substrate.

23. The reflective imaging encoder of Claim 1 where the coder comprises dark code strips on a diffuse and reflective medium.

24. The reflective imaging encoder of Claim 1 where the coder comprises reflective bars and transparent slots.

25. The reflective imaging encoder of Claim 1 where the detector comprises an array of photodiodes.

26. The reflective imaging encoder of Claim 1 where the detector is mounted on the optical axis of the imaging lens.

27. The reflective imaging encoder of Claim 1 further comprising a light baffle minimizing stray light reaching the detector.